



## Shutters Provide Peace of Mind During Storm

### Full Mitigation Best Practice Story

#### *Harris County, Texas*

**Houston, TX** – With wind gusts approaching 100 miles per hour (mph), Hurricane Ike (September 2008) roared into Houston as a Category 2 storm, peeling sheets of steel off skyscrapers, downing power lines and trees, blowing out windows, and dumping mountains of debris. As the storm raged, patients at Houston Hospice were securely tucked away behind hurricane shutters.



“They say ‘Run from the water and hide from the wind.’ That’s what we chose to do,” said Christine Blackmon, vice president of finance for Houston Hospice. “We bunkered in, so to speak, and pulled those shutters down so that the patients would be protected.”

Located in the Texas Medical Center in Houston, the hospice provides inpatient and respite care at its 25-bed inpatient facility. It provides dignified and compassionate care for people in the last phase of a terminal illness so they can live as fully and comfortably as possible. The goal of hospice care is to enable patients to continue an alert, pain-free life and to manage other symptoms so their last days may be spent with dignity.

“We didn’t have any broken windows [due to Ike]. We actually had some wind-driven rain that came in through the windows in some of the patients rooms,” said Blackmon. “It wasn’t anything severe. We were able to put towels down and get the rooms cleaned up.”

Houston Hospice saw the need for hurricane shutters following damage to the Patient Care Unit, estimated at \$45,000, incurred from Tropical Storm Allison (June 2001). In January 2003, the hospice received a \$131,250 grant from the Federal Emergency Management Agency (FEMA) through its Hazard Mitigation Grant Program (HMGP) for the placement of storm shutters on the windows and doors of its Patient Care Unit. HMGP pays 75 percent on approved projects that will prevent or reduce damage from storms and other natural hazards. Administered by the state, these grants are made available for both public and private projects.

Hurricane shutters are often used to protect window openings in a storm, although impact-resistant windows are increasingly popular. According to the Hurricane Research Division of the National Oceanic and Atmospheric Administration (NOAA), people who live in coastal areas from Texas to Maine, and in other hurricane-prone areas, will find shutters an excellent investment for protecting against wind and wind-borne debris. These shutters provide protection of not only the windows and doors they cover but also possessions and people inside. Once a window or door has been breached by hurricane-force winds, tremendous pressure is brought to bear on interior walls. Upward pressure on the building’s roof can lead to roof failure, which exposes the entire contents of the building to the storm. Shutters are a first line of defense against the hurricane. Much of the damage and building failure in Hurricane Andrew (1992) could have been prevented by well-installed hurricane shutters over windows and doors.

“For us, the shutters were a critical need. With the winds blowing the way they were, uprooting trees, sailing tree limbs and tearing down cement fencing, the shutters provided a peace of mind,” said Blackmon. “The patients were able to feel safe and secure. They didn’t have to be concerned about things coming through the windows.”

Blackmon continued, “In some cases, even watching what was going on could be very frightening for patients in that stage of their life. So the shutters gave both the patients and staff a feeling of security. We were grateful to FEMA and the state when they approved [the] shutters.”

#### Activity/Project Location

Geographical Area: **Single County in a State**

FEMA Region: **Region VI**

State: **Texas**

County: **Harris County**

City/Community: **Houston**

#### Key Activity/Project Information

Sector: **Public**

Hazard Type: **Hurricane/Tropical Storm**

Activity/Project Type: **Retrofitting, Structural**

Structure Type: **Concrete, Reinforced**

Activity/Project Start Date: **01/2003**

Activity/Project End Date: **09/2005**

Funding Source: **Hazard Mitigation Grant Program (HMGP)**

Funding Recipient: **Critical Facility - Medical**

Application/Project Number: **0135**

#### Activity/Project Economic Analysis

Cost: **\$175,000.00 (Actual)**

#### Activity/Project Disaster Information

Mitigation Resulted From Federal  
Disaster? **Yes**

Federal Disaster #: **1379 , 06/09/2001**

Federal Disaster Year: **2001**

Value Tested By Disaster? **Unknown**

Repetitive Loss Property? **No**

#### Reference URLs

No URLs were submitted

## Main Points

No Main Points were entered.



Electric roll-down shutter on door of Patient Care Unit at Hospice



Hurricane shutters are above all of the windows of the patient Care Unit at Hospice



Hurricane-force winds claim portion of fencing at Hospice



Christine Blackmon, vice president of finance. demonstrates ease of operation of electric roll-down shutters